



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,877	04/21/2006	Masahiro Yamazaki	358275.30006	6171
32256	7590	03/31/2008		
REED SMITH LLP				
3110 FAIRVIEW PARK DRIVE				
FALLS CHURCH, VA 22042				
EXAMINER				
AHMED, SHEEBA				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
03/31/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,877

Applicant(s)

YAMAZAKI ET AL.

Examiner

SHEEBA AHMED

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)
Paper No(s)/Mail Date 4/21/06: 1/30/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Preliminary Amendment

1. The Preliminary Amendment filed on April 21, 2006 has been entered in the above-identified application. The wavelength of peak A has been amended in the Specification and claims 3-7, 10, and 11 have been amended. **Claims 1-11 are pending and under consideration.**

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a film comprising at least a multivalent metal salt of a polycarboxylate-based polymer (A), wherein the density is not lower than 1.80 g/cm³ and not higher than 2.89 g/cm³ and having a thickness of 0.001 microns to 1mm, does not reasonably provide enablement for a film comprising at least a multivalent metal salt of a polycarboxylate-based polymer (A), wherein the density has no upper limit and no thickness is specified. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

Page 22, lines 4-15 of the Specification states that "It is desirable that the density of the film be 1.80 to 2.89 g/cm³ " given that "where the density of the film exceeds 2.89

g/cm³, this increases the amount of a multivalent metal compound to be added, and makes it difficult to work with the post-coated film” and Page 31, lines 3-12 of the Specification states that “in a case where the thickness of the film is smaller than 0.001 microns, it is difficult to form the film. This makes it impossible to form films in a stable manner. By contrast, in a case where the thickness of the film exceeds 1 mm, it is difficult to apply the film to a substrate. This presents a problem with the manufacture. If the thickness of a film is that large or that small, this makes it impossible to obtain a film which satisfies the requirements of both the oxygen-gas barrier properties and the moisture proofness”. Hence, indicating that the upper limit of the density and the thickness of the film are critical to the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 3-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Obha et al. (US 6,605,344 B1).

Obha et al. disclose a gas-barrier film which is produced through applying a layer containing a metallic compound to a surface of a processed-polymer layer produced from a mixture of a polyalcohol and at least one poly(meth)acrylic polymer selected

from the group consisting of poly(meth)acrylic acids and partially neutralized poly(meth)acrylic acids (See Abstract). The laminated gas-barrier film containing the aforementioned gas-barrier film can be laminated on with a plastic film. The gas-barrier film exhibits excellent gas-barrier properties. The metallic compound is at least one species selected from the group consisting of magnesium oxide, calcium oxide, zinc oxide, magnesium hydroxide, calcium hydroxide, and zinc hydroxide. There is also provided a gas-barrier film wherein the metallic-compound-containing layer is produced from a mixture of the metallic compound and a resin. The metallic-compound-containing layer is applied to the surface of a polymer layer and the metal invades the polymer layer from the metallic-compound-containing layer. Invasion of a metal can be confirmed by means of energy-dispersive X-ray spectroscopy (EDX). The existence ratio in the polymer layer (the number of counting of metallic atoms/the number of counting of oxygen atoms) is 0.1-20 at a position 0.1 microns deep in a polymer layer from the interface between the polymer layer and a layer containing a metallic compound solely or a layer of a mixture of metallic compound and resin. With regards to the density, the surface ratio of the infrared absorption spectrum, the peak ratio of infrared absorption spectrum, the water vapor permeability and oxygen permeability. As used herein, the term "a polymer layer which is fixed onto a substrate" refers to "a polymer layer, to which a metallic-compound-containing layer is not applied, which is fixed onto a substrate" or "a polymer layer which may be peeled off a substrate." The material of a substrate is not particularly limited, and a metallic plate, a glass plate, or a plastic film may be employed as a substrate. Of

Art Unit: 1794

these, a plastic film is preferably employed. More preferably, a substrate is chosen from a variety of plastic films in accordance with heat treatment temperature or the intended use of a gas-barrier film (for example, a gas-barrier film is used in sterilization treatment). When the polymer layer is subjected to heat treatment, the resultant layer has water resistance. In addition, there can be produced a polymer film exhibiting excellent gas-barrier properties (See Column 1, lines 5-15; Column 2, lines 46-64; Column 3, lines 23-36; Column 9, lines 43-53; and all Examples). With regards to the limitations of density, surface ratio of infrared absorption spectrum, peak ratio of infrared absorption spectrum, water vapor permeability and oxygen permeability, the Examiner takes the position that such property limitations are inherent in the polymer layer containing the divalent metal species as taught in the above reference. All limitations of claims 1 and 3-11 are either inherent or disclosed in the above reference.

4. Claims 1 and 3-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Rickert, Jr. (US 4163702 A).

Rickert, Jr. discloses a process wherein the surfaces of articles of manufacture fabricated from aluminum and other material which are not permanently water wettable are rendered permanently water wettable by coating the surface with a continuous film of the free acid form of an acidic film forming polymer which forms water soluble salts, said film containing a curing agent for the polymer; contacting the polymer film under aqueous conditions with colloidal alumina or a polyvalent metal salt;

Art Unit: 1794

curing the polymer to water insolubility; and, when required to render the cured film water wettable by hydrolyzing the surface portion only of the cured polymer (See Abstract). The process entails the coating a surface with a continuous coherent film of the free acid form of a film forming acidic polymer which forms water soluble salts and which is curable to water insolubility, said film containing a curing agent for the polymer; contacting the thus-coated surface, under acidic aqueous conditions which retain the polymer coating on the surface, with colloidal alumina or a water soluble polyvalent metal salt; curing the thus-contacted polymer on the surface to water insolubility (***thus this film meets the limitation of the claimed invention***) and, when required to render the cured polymer water wettable, thereafter hydrolyzing substantially only the surface portion of the cured polymer. A wide variety of structural types of film-forming acidic polyelectrolytes can be employed, including homopolymers of acrylic and methacrylic acid. Of the salts of polyvalent metals, preferred are salts of metals of the Group IB, IIA, IIB, IIIA, VIIB or VIII series, more preferably of Mg, Al, Ca, Mn, Fe, Co, Ni, or Zn. Of these, the aluminum and divalent metal salts, e.g., magnesium, calcium and manganous salts are especially preferred. The cured polymer ordinarily is not water wettable and therefore hydrolysis of the surface portion thereof is required to impart water wettability thereto. The cured and, when required, also surface hydrolyzed, polymer coating on the substrate is permanent as evidenced by its resistance to abrasion and resistance to water. With regards to the limitations of density, surface ratio of infrared absorption spectrum, peak ratio of infrared absorption spectrum, water vapor permeability and oxygen permeability, the Examiner takes the

Art Unit: 1794

position that such property limitations are inherent in the polymer layer containing the divalent metal species as taught in the above reference. All limitations of claims 1 and 3-11 are either inherent or disclosed in the above reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obha et al. (US 6,605,344 B1) or over Rickert, Jr. (US 4,163,702 A).

Obha et al. or Rickert, Jr., as discussed above, do not disclose that the multivalent metal is present in an amount which is not smaller than 0.5 chemical equivalents relative to all the carboxyl groups contained in the polycarboxylate-based polymer.

However, it would have been obvious to one having ordinary skill in the art to optimize the amount of the multivalent metal present in the film layer to obtain optimum resistance to moisture.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHEEBA AHMED whose telephone number is

Art Unit: 1794

(571)272-1504. The examiner can normally be reached on Monday-Friday from 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheeba Ahmed/
Primary Examiner, Art Unit 1794